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EXAMINER				
OJURONGBE, OLATUNDE S				
ART UNIT		PAPER NUMBER		
1796				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents.admin@dowcorning.com

Office Action Summary

Application No.

10/577,365

Applicant(s)

LIND ET AL

Examiner

OLATUNDE S. OJURONGBE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-13, 15 and 16 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 20060428
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

(i) the hydroxyl endblocked siloxane oligomer condensation step of claims 1, 8 and 15.

(ii) the hydrogen endblocked siloxane and vinyl endblocked siloxane oligomer hydrosilylation reaction step of claims 1, 8 and 15

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

2. The claims are deemed to correspond to the species listed above in the following manner:

Certain claim limitations for claims 1-13 and 15-16 are directed toward species (i);

Certain claim limitations for claims 1-13 and 15-16 are directed toward species (ii).

The following claim(s) are generic: Claims 1-13, 15 and 16.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons:

while the special technical feature of the invention is the free radical emulsion polymerization, there is lack of unity a posteriori, since the free radical emulsion polymerization is not the applicant's contribution over prior art (see Van Aert et al (EP 1217010)).

3. During a telephone conversation with Alan Zombeck on 06/02/2008 a provisional election was made with traverse to prosecute the invention of species (i), claims 1-13 and 15-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-13 and 15-16 directed toward species (ii) are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Oath/Declaration

5. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The specification to which the oath or declaration is directed has not been adequately identified. See MPEP § 602.

Claim Objections

6. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Claim 14 is missing from the list of claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. **Claims 1-3, 5-6 and 15-16**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Gee (US 6,316,541) in view of Tamori et al (EP 1172412).

Regarding **claim 1**, Gee discloses a method for making polysiloxane emulsions using emulsion polymerization (col.1, lines 6-8) which

- involves the opening of cyclic siloxane rings (col.4, lines 40-41) using an acid or base in the presence of water (col.4, line 42);

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- upon opening of the rings, polysiloxanes oligomers with terminal hydroxyl groups are formed; these polysiloxane oligomers react through condensation reaction (col.4, lines 42-47);

However, Gee does not disclose (ii) adding to the emulsion in (i) components for preparing an emulsion containing an organic polymer by free radical emulsion polymerization of one or more ethylenically unsaturated organic monomers; and (iii) heating the emulsion from (ii).

Tamori et al teaches a method of producing an aqueous dispersion [0011, line 1] comprising emulsifying a mixture [0011, line 2] containing

- (A) at least one selected from an organosilane, a hydrolyzate of the organosilane and a condensate of the organosilane [0011, lines 2-3]; the condensate of the organosilane is a polyorganosiloxane [0027, line 4];
- (B) a radical polymerizable vinyl monomer [0011, line 3];
- radical polymerization initiator [0011, line 4];

through

- preparing the polyorganosiloxane by hydrolyzing and condensing the organosilane [0030, lines 1-3];
- mixing the polyorganosiloxane and component (B) [0032, line 2];

at a temperature preferably from 40 to 70°C [0066, lines 1-2].

Tamori et al further discloses that the polymerization of the vinyl monomer (B) in an emulsion particle in the presence of component (A), a siloxane component, produces a

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silicone resin rich in hardness, resistance to chemicals , resistance to weather and good in flexibility [0014, lines 1-10].

Since both inventions are in the same field of endeavor, polysiloxane emulsions (Gee, Abstract, lines 1-2 and Tamori et al, Abstract, lines 1-6), one of ordinary skill in the art at the time the invention was made would have incorporated the steps of mixing siloxane with a radical polymerizable vinyl monomer (component (B)) and subjecting the resulting composition to a temperature range of 40 to 70°C disclosed by Tamori et al into the invention of Gee, in order to obtain a composition with the advantages disclosed above; such combination would have amounted to nothing more than the use of a known element for its intended use in a known environment in order to achieve an entirely expected result.

Regarding **claims 2 and 6**, modified Gee discloses all the claim limitations as set forth above and further discloses that there is no particular limitation on component (B), as long as it is a monomer having a radical polymerizable unsaturated double bond [Tamori et al, 0041, line 1-0044, line 8]. Component (B) of modified Gee is the same as the ethylenically unsaturated organic monomer of the instant claim.

Regarding **claim 3**, modified Gee discloses all the claim limitations as set forth above and further discloses mixing components (A) (the polysiloxane oligomers) and (B) (radical polymerizable vinyl monomer) [Tamori et al, 0061, lines 1-2], and then adding the radical polymerization initiator [Tamori et al, 0061, lines 5-6].

Regarding **claim 5**, modified Gee discloses all the claim limitations as set forth above and further discloses polydiorganocyclosiloxanes useful in the invention (Gee, col.4, line 52- col.5, line 20) and methyl methacrylate, butyl methacrylate, acrylic acid and 2-hydroxyethyl methacrylate as more preferred component (B) [Tamori et al, 0046].

Polydiorganocyclosiloxanes are linear siloxanes which upon ring opening (Gee, col.4, lines 40-41) produce linear siloxanes that are free of T and Q units, and the more preferred component (B) disclosed are organic compounds free of silicon atoms.

Though modified Gee does not disclose that the resulting emulsion contains an immiscible mixture of linear silicone polymers and organic polymers, the examiner notes that the miscibility of a chemical composition with another chemical composition is an inherent property of the chemical composition, and a chemical composition and its properties are inseparable; therefore, if the prior art teaches the identical chemical compound, the properties applicant discloses and/or claims are necessarily present. In *re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir.1990). Since modified Gee discloses an emulsion comprising linear siloxane (silicone) polymers and organic polymers, the immiscibility of the two polymers is inherently present in the emulsion, therefore the immiscibility of the silicone polymers and organic polymers does not confer patentability to the claim.

Regarding **claims 15 and 16**, Gee discloses a method for making polysiloxane emulsions using emulsion polymerization (col.1, lines 6-8) which

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- involves the opening of cyclic siloxane rings (col.4, lines 40-41) using an acid or base in the presence of water (col.4, line 42);

- upon opening of the rings, polysiloxanes oligomers with terminal hydroxyl groups are formed; these polysiloxane oligomers react through condensation reaction (col.4, lines 42-47);

However, Gee does not disclose (ii) adding to the emulsion in (i) components for preparing an emulsion containing an organic polymer by free radical emulsion polymerization of one or more ethylenically unsaturated organic monomers; and (iii) heating the emulsion from (ii).

Tamori et al teaches a method of producing an aqueous dispersion [0011, line 1] comprising emulsifying a mixture [0011, line 2] containing

- (A) at least one selected from an organosilane, a hydrolyzate of the organosilane and a condensate of the organosilane [0011, lines 2-3]; the condensate of the organosilane is a polyorganosiloxane [0027, line 4];
- (B) a radical polymerizable vinyl monomer [0011, line 3];
- radical polymerization initiator [0011, line 4];

through

- preparing the polyorganosiloxane by hydrolyzing and condensing the organosilane [0030, lines 1-3];
- mixing the polyorganosiloxane and component (B) [0032, line 2];

at a temperature preferably from 40 to 70°C [0066, lines 1-2].

Tamori et al further discloses that the polymerization of the vinyl monomer (B) in an emulsion particle in the presence of component (A), a siloxane component, produces a silicone resin rich in hardness, resistance to chemicals , resistance to weather and good in flexibility [0014, lines 1-10].

Since both inventions are in the same field of endeavor, polysiloxane emulsions (Gee, Abstract, lines 1-2 and Tamori et al, Abstract, lines 1-6), one of ordinary skill in the art at the time the invention was made would have incorporated the steps of mixing the siloxane with a radical polymerizable vinyl monomer (component (B)) and subjecting the resulting composition to a temperature range of 40 to 70°C disclosed by Tamori et al into the invention of Gee, in order to obtain a composition with the advantages disclosed above; such combination would have amounted to nothing more than the use of a known element for its intended use in a known environment in order to achieve an entirely expected result.

Modified Gee discloses polydiorganocyclicsiloxanes useful in the invention (Gee, col.4, line 52- col.5, line 20) and methyl methacrylate, butyl methacrylate, acrylic acid and 2-hydroxyethyl methacrylate as more preferred component (B) [Tamori et al, 0046].

Polydiorganocyclicsiloxanes are linear siloxanes which upon ring opening (Gee, col.4, lines 40-41) produce linear siloxanes that are free of T and Q units, and the more preferred component (B) disclosed are organic compounds free of silicone atoms.

Though modified Gee does not disclose that the resulting emulsion contains an immiscible mixture of linear silicone polymers and organic polymers, the examiner notes that the miscibility of a chemical composition with another chemical composition is an

inherent property of the chemical composition, and a chemical composition and its properties are inseparable; therefore, if the prior art teaches the identical chemical compound, the properties applicant discloses and/or claims are necessarily present. In *re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir.1990). Since modified Gee discloses an emulsion comprising linear siloxane (silicone) polymers and organic polymers, the immiscibility of the two polymers is inherently present in the emulsion, therefore the immiscibility of the silicone polymers and organic polymers does not confer patentability to the claim.

11. **Claims 8-11 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamori et al (EP 1172412) in view of Gee (US 6,316,541).

Regarding **claims 8 and 13**, Tamori et al discloses a method of producing an aqueous dispersion [0061, line 1] which comprises

- mixing components (A) and (B) [0061, lines 1-2], component (B) is a radical polymerizable vinyl monomer [0010, line 3];
- Conducting radical polymerization [0061, lines 6-7].

Gee discloses a method for making polysiloxane emulsions using emulsion polymerization (col.1, lines 6-8) which

- involves the opening of cyclic siloxane rings (col.4, lines 40-41) using an acid or base in the presence of water (col.4, line 42);

- upon opening of the rings, polysiloxanes oligomers with terminal hydroxyl groups are formed; these polysiloxane oligomers react through condensation reaction (col.4, lines 42-47);

Gee further discloses that the composition of the invention is a stable, oil-free microemulsion (col.3, lines 52-54). Microemulsions are the most desired type of silicone emulsions due to their smaller particle size and higher stability (col.1, lines 37-39).

Since Tamori et al further discloses that the aqueous dispersion of the invention may be blended with other emulsions [0150, lines 1-3], it would have been obvious to one of ordinary skill in the art at the time the invention was made to have blended the aqueous dispersion of Tamori et al with the emulsion of Gee in order to incorporate the desired silicone microparticles of the emulsion of Gee into the composition of Tamori et al, thereby having a resulting emulsion with a higher stability.

Regarding **claims 9 and 11**, modified Tamori et al discloses all the claim limitations as set forth above and further discloses that there is no particular limitation on component (B), as long as it is a monomer having a radical polymerizable unsaturated double bond [Tamori et al, 0041, line 1-0044, line 8]. Component (B) of modified Tamori et al is the same as the ethylenically unsaturated organic monomer of the instant claim.

Regarding **claim 10**, modified Tamori et al discloses all the claim limitations as set forth above and further discloses polydiorganocyclosiloxanes useful in the invention (Gee,

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col.4, line 52- col.5, line 20) and methyl methacrylate, butyl methacrylate, acrylic acid and 2-hydroxyethyl methacrylate as more preferred component (B) [Tamori et al, 0046].

Polydiorganocyclicsiloxanes are linear siloxanes which upon ring opening (Gee, col.4, lines 40-41) produce linear siloxanes that are free of T and Q units, and the more preferred component (B) disclosed are organic compounds free of silicone atoms.

Though modified Tamori et al does not disclose that the resulting emulsion contains an immiscible mixture of linear silicone polymers and organic polymers, the examiner notes that the miscibility of a chemical composition with another chemical composition is an inherent property of the chemical composition, and a chemical composition and its properties are inseparable; therefore, if the prior art teaches the identical chemical compound, the properties applicant discloses and/or claims are necessarily present. In *re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir.1990). Since modified Tamori et al discloses an emulsion comprising linear siloxane (silicone) polymers and organic polymers, the immiscibility of the two polymers is inherently present in the emulsion, therefore the immiscibility of the silicone polymers and organic polymers does not confer patentability to the claim.

12. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gee (US 6,316,541) in view of Tamori et al (EP 1172412) as applied to claim 1 above, in further view of Van Aert et al (EP 1217010).

Regarding **claim 4**, modified Gee discloses all the claim limitations as set forth above. However, modified Gee does not disclose a method in which the components in (ii) are added to the emulsion in (i) simultaneously.

Van Aert et al discloses a similar emulsion free radical polymerization (Abstract, line 3) in which the monomer phase, containing styrene and alpha-methylstyrene and the initiator are added simultaneously to the reaction [0061, lines 3-6].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the step in which the monomer and the initiator are added to the reaction simultaneously into the invention of modified Gee, thereby eliminating the extra step from adding them separately, thus saving time.

13. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gee (US 6,316,541) in view of Tamori et al (EP 1172412) as applied to claim 1 above, as evidenced by Hyde et al (US 2,891,920).

Regarding **claim 7**, modified Gee discloses all the claim limitations as set forth above and further discloses the method in which the polymerization reaction can be stopped at the desired particle size of the siloxane (col.8, lines 60-62), exemplifying a particle size of 82 nm (col.12, line 61); and further discloses that the reaction was allowed to proceed until it became too viscous to stir (col.12, lines 54).

Though modified Gee does not disclose the method in which the viscosity of the phase containing the silicone polymer is 2,000-10,000,000 centistoke (mm^2/s), it is known in the art, as evidenced by Hyde et al, that the time of polymerization in an emulsion

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polymerization will vary depending upon the viscosity desired in the resulting siloxane (col.1, line 72- col.2, line 2), hence one of ordinary skill in the art at the time the invention was made would have ended the polymerization reaction of modified Gee at the desired viscosity, including 2,000-10,000,000 centistoke (mm^2/s), for the resulting siloxane; since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, (In re Boesch, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), (In re Aller, 105 USPQ 223), the viscosity of the phase containing the silicone polymer being 2,000-10,000,000 centistoke (mm^2/s) does not confer patentability to the claim.

14. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamori et al (EP 1172412) in view of Gee (US 6,316,541) as applied to claim 8 above, as evidenced by Hyde et al (US 2,891,920).

Regarding **claim 12**, modified Tamori et al discloses all the claim limitations as set forth above and further discloses the method in which the polymerization reaction can be stopped at the desired particle size of the siloxane (Gee, col.8, lines 60-62), exemplifying a particle size of 82 nm (Gee, col.12, line 61), and further discloses that the reaction was allowed to proceed until it became too viscous to stir (Gee, col.12, lines 54).

Though modified Tamori et al does not disclose the method in which the viscosity of the phase containing the silicone polymer is 2,000-10,000,000 centistoke (mm^2/s), it is known in the art, as evidenced by Hyde et al, that the time of polymerization in an

emulsion polymerization will vary depending upon the viscosity desired in the resulting siloxane (col.1, line 72- col.2, line 2), hence one of ordinary skill in the art at the time the invention was made would have ended the polymerization reaction of modified Tamori et al at the desired viscosity, including 2,000-10,000,000 centistoke (mm^2/s), for the resulting siloxane; since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, (In re Boesch, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), (In re Aller, 105 USPQ 223), the viscosity of the phase containing the silicone polymer being 2,000-10,000,000 centistoke (mm^2/s) does not confer patentability to the claim.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLATUNDE S. OJURONGBE whose telephone number is (571)270-3876. The examiner can normally be reached on Monday-Thursday, 7.15am-4.45pm, EST time, Alt Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.S.O.

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796

